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MEMORANDUM

DATE: September 28, 2011 **FILE:** 4113101

TO: Drew McIntyre, Chief Engineer, NMWD

FROM: Emily Dean

RE: MSN-B1, Line Shutdown and Draining for New Connections

The B1 project contains four new connection points to the existing aqueduct, all of which will require cutting the existing aqueduct to weld in the new connection piece. The flow in the existing aqueduct will need to be stopped and water drained from these areas in order to perform these "cut in" connections. The text below and associated plan and profiles show the location of the existing in-line valves on the aqueduct which can be used to isolate the segments in which the new connections will take place, as well as the drain locations from which the segments can be drained.

The valves which would need to be closed and the blow offs through which the segments can be drained to construct the MSN B-1 project are described in further detail below. Note that this shutdown will likely be coordinated with the MSN B-3 shutdown, though the valve closures and draining needed for that work is not described in this memo.

Valve Closures for "W1" – In line valves at Stations 372+40 and 424+00 shall be closed to isolate the segment between them, which contains both the W1 South and W1 North connection locations. Valves shall only be operated by NMWD crews.

Aqueduct Discharge for "W1"- The existing water in the portion of aqueduct between Station 372+40 and Station 424+00 shall be dechlorinated and disposed of by the contractor, in conformance with the specifications. Discharges will occur at Station 393+40 and Station 415+80. The estimated volume of water discharging from Station 393+40 is 32,900 gallons and the estimated volume discharging from Station 415+80 is 21,300 gallons, with a total estimated discharge volume of 54,200 gallons.

Gravity flows from the line shall not be allowed to exceed 4,400 gallons per minute, to maintain flow velocity in the pipe less than 2 feet per second. Discharged water shall first be captured and chlorine shall be neutralized until not detectable at a detection limit of 0.01 mg/l prior to discharge to a storm drain or stream. Flows to streams shall be limited to 20% of the 2-year flow rate and take other measures as noted in the specifications so as not to cause erosion.

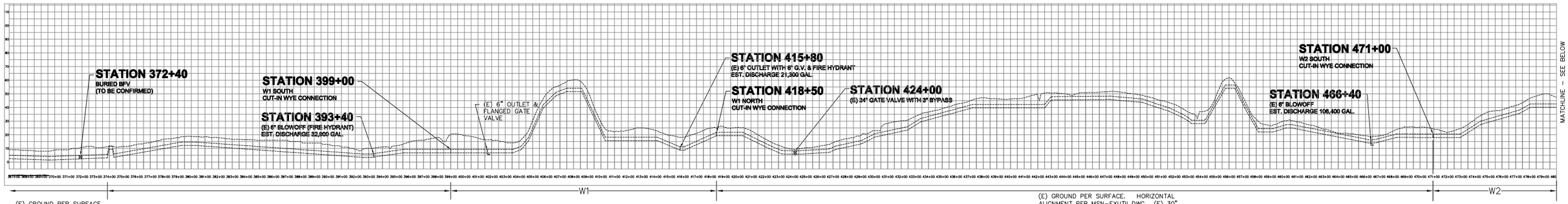
Once the aqueduct has finished draining via gravity, additional pumping may be required to remove the water in the aqueduct so the connection at W1 South and W1 North will be dry at the time of connection. Valves shall only be operated by NMWD crews.

Valve Closures for "W2" – In line valves at Stations 424+00 and Station 593+00 shall be closed to isolate the segment between them, which contains both W2 South (471+00) and W2 North (559+30). Valves shall only be operated by NMWD crews.

Aqueduct Discharge for "W2" - The existing water in the portion of aqueduct between Station 424+00 and Station 593+00 shall be dechlorinated and disposed of by the contractor, in conformance with the specifications. Discharges will occur at Station 466+40 and Station 567+40. The estimated volume of water discharging from the Station 466+40 is 106,400 gallons and the estimated volume discharging from Station 567+40 is 62,200 gallons, with a total estimated discharge volume of 168,600 gallons.

Gravity flows from the line shall not be allowed to exceed 4,400 gallons per minute, to maintain flow velocity in the pipe less than 2 feet per second. Discharged water shall first be captured and chlorine shall be neutralized until not detectable at a detection limit of 0.01 mg/l prior to discharge to a storm drain or stream. Flows to streams shall be limited to 20% of the 2-year flow rate and take other measures as noted in the specifications so as not to cause erosion.

Once the aqueduct has finished draining via gravity, additional pumping at Station 466+40 may be required to remove the water in the aqueduct so the connection at W2 South will be dry at the time of connection. (NOTE: The connection at W2 North is anticipated to be dry after the aqueduct drains via gravity.) Valves shall only be operated by NMWD crews.



(E) GROUND PER SURFACE. HORIZONTAL ALIGNMENT OF (E) WATER PER MSN-EXUTIL.DWG. (E) 30" WATERLINE STATIONS AND ELEVATIONS ESTIMATED ASSUMING 4' COVER

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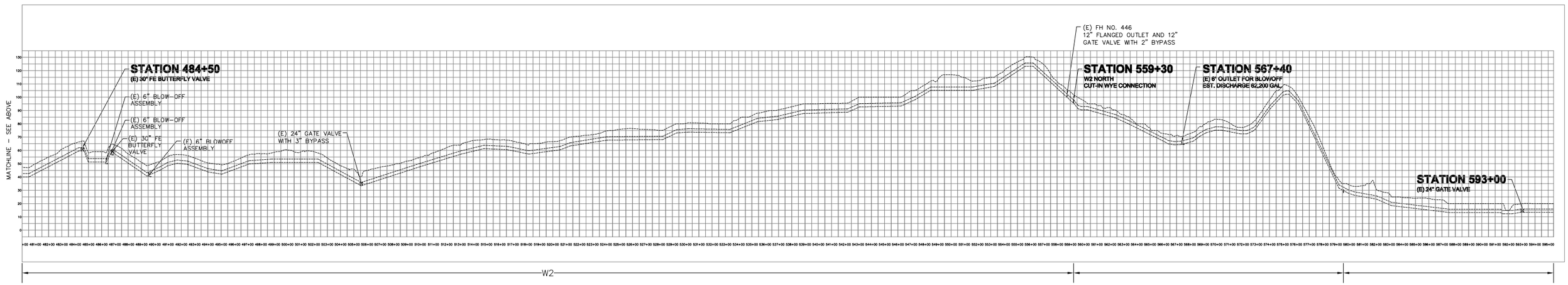
(E) GROUND PER SURFACE. HORIZONTAL ALIGNMENT OF (E) WATER PER CAD DRAWINGS. (E) 30" WATERLINE STATIONS AND ELEVATIONS ESTIMATED ASSUMING 4' COVER (TYP).

(E) GROUND PER SURFACE. HORIZONTAL ALIGNMENT PER MSN-EXUTIL.DWG. (E) 30" WATERLINE STATIONS AND ELEVATIONS DRAWN PER NMWD AS-BUILTS.

(E) GROUND PER SURFACE. HORIZONTAL ALIGNMENT OF (E) WATER PER MSN-EXUTIL.DWG. (E) 30" WATERLINE STATIONS AND ELEVATIONS ESTIMATED ASSUMING 4' COVER (TYP).

EXISTING AQUEDUCT PROFILE - MSN B1

SCALE: 1" = 300'



(E) GROUND PER SURFACE. HORIZONTAL ALIGNMENT OF (E) WATER PER MSN-EXUTIL.DWG. (E) 30" WATERLINE STATIONS AND ELEVATIONS ESTIMATED ASSUMING 4' COVER (TYP).

(E) GROUND PER SURFACE. HORIZONTAL ALIGNMENT OF (E) WATER DRAWN PER AS-BUILTS. POTHOLE LOCATIONS USED TO VERIFY TOP OF PIPE AND THEN TO FIT (E) WATER TO AN ESTIMATED ALIGNMENT. (E) 30" WATERLINE STATIONS AND ELEVATIONS DRAWN PER NMWD AS-BUILTS THEN SCALED AS FOLLOWS TO BEST MATCH (E) GROUND: X = 0.990; Y = 1.000; Z = 1.000

(E) GROUND PER SURFACE. HORIZONTAL ALIGNMENT OF (E) WATER PER TAM-UTILITIES.DWG. (E) 30" WATERLINE STATIONS AND ELEVATIONS ESTIMATED ASSUMING 4' COVER (TYP).

NORTH

Graphic Scale (in feet)

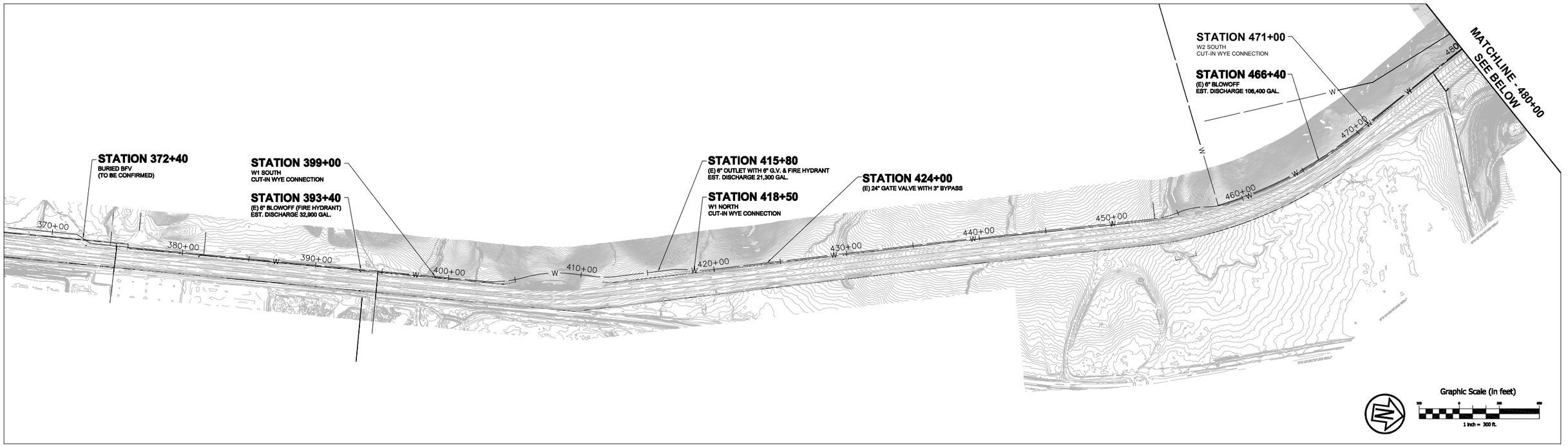
300 0 300 600

1 Inch = 300 ft.

EXISTING AQUEDUCT PROFILE - MSN B1 AND B3

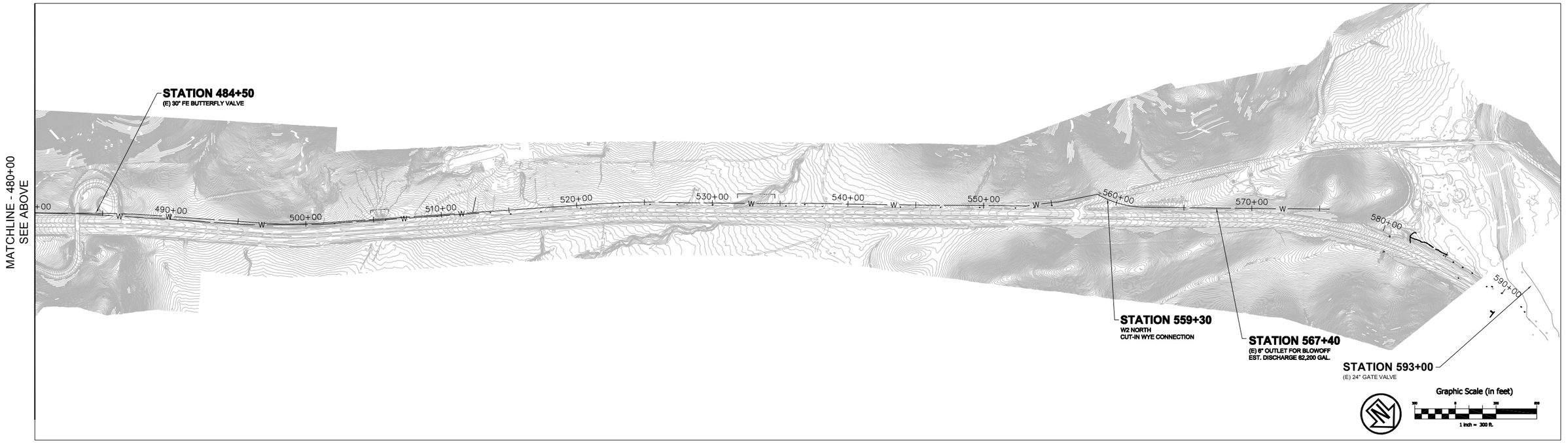
SCALE: 1" = 300'

N:\CIVIL\4\4113101\DWG\working jks\2011-05-10 B1 Existing Aqueduct Profile\Exhibi B1 - Existing Aqueduct Profile.dwg, 3/28/2012 2:46:23 PM, shujk, Bluebeam PDF.pc3, 1:2.3922



EXISTING AQUEDUCT PLAN - MSN B1

SCALE: 1" = 300'



EXISTING AQUEDUCT PLAN - MSN B1 AND B3

SCALE: 1" = 300'

N:\CIVIL\4\4113101\DWG\working jks\2012-03-22 Existing Aqueduct Plan\2012-03-22 Existing Aqueduct Plan.dwg, 3/28/2012 2:37:57 PM, shujk, Bluebeam PDF.pc3, 1:2.43605